

30 credits – Continuous profiling of HPC applications

Ingress:

Thesis project at Scania is an excellent way of making contacts for your future working life. Many of our current employees started their career with a thesis project.

Background:

Performance profiling of applications within HPC normally requires explicit execution on a set of well known problems where results are compared to expected performance values. This method allocates time and CPU resources which reduces over all efficiency in the computer center since results are not useful for anything but benchmarks. We are therefore interested in finding a method of performing benchmarks continuously within our normal production and thus improve our general efficiency in the cluster environment at Scania.

Target:

The student research and develops a generic solution to perform application profiling on linux based systems. The challenge is to create or find this generic solution applicable to all applications. The solution presented should not affect the over-all performance of the computer center significantly, so a comparative benchmark has to be performed as part of the evaluation.

The profiling solution is implemented in our clusters at Scania together with the benchmarks and evaluated.

Assignment:

The student perform a survey of available software solutions available (open source or proprietary) and based on the findings suggest a few candidate solutions.

The student then performs a comparative study on their applicability in a HPC context and tries to implement a prototype at Scania. This means working with Linux systems on advanced system administration level.

Finally, a paper is published.

Education:

Discipline: Computer Science, deep knowledge in Linux, probably kernel level.

Students: 1-2

Start date: January 2016

Estimated time needed: 4-5 month

Contact persons and supervisors:

Fredrik Hurtig, Group Manager, Scania IT, ITBZ, phone: 08 553 856 09

Erik Lönroth, Technical Responsible, Scania IT, ITBZ, phone 08 553 527 21

Application: Enclose CV, personal letter and school-leaving certificate.

Publication date from - until

2015-10-02 — 2015-10-31

Apply for this job:

<http://jobsearch.scania.com/segerjoblist/presentation.aspx?presGrpId=7434&langId=1&ie=False>